from the enemies surrounding a terrestrial nursery. The third and last stage is represented by the protective coloration, a device which has been almost universally adopted by nidifugous birds, owing to its greater effectiveness."

The Hoatzin is taken as the main clew to the problem. In the structure of its wing "we have a revelation of a phase of bird-life hitherto unsuspected; inasmuch as its peculiar developmental stages, each with its period of functional activity, enable us to interpret the hitherto meaningless and puzzling characters seen in the wing of the fowl and turkey, and their allies. These constitute well-nigh invincible proofs of an earlier and universal arboreal existence, extending back to the time of the earliest known bird archæopteryx. Certainly the skeleton, especially the wing, lends the strongest support to this view. This carries us further back still, and suggests the conclusion that the reptile stock from which the aves are descended was probably also arboreal."

He explains that infant mortality could be reduced (1) by depositing the eggs on the ground, or (2) curtailing the activity of the young, the latter being produced by reducing the amount of food-yolk and inducing an earlier hatching period. But space will not permit us to give a synopsis of his many ingenious suggestions.—J. A. A.

Strong on a Case of Abnormal Plumage.[1]—The case here described is that of an abnormal condition in the juvenal plumage of a hybrid between the Common Ring Dove (*Turtur risorius*) and the Red Ring Dove (*T. humilis*) of China, in which the remiges, rectrices and contour feathers were crossed by a subterminal band of paler color, in which the barbules were imperfectly developed. "It is significant," says the author, "that these abnormalities occur at uniform distances from the distal ends of the feathers throughout the whole plumage, and it seems reasonable to conclude that the conditions responsible for the abnormalities were constitutional, and affected the germs of all the feathers simultaneously, though in three different degrees of intensity." The abnormalities are ascribed to malnutrition at the time the juvenal plumage was developing. The character of the malformation is described in detail and illustrated with figures.—J. A. A.

Trowbridge on 'The Relation of Wind to Bird Migration.'[2]—In 'The Auk' for July, 1895 (XII, pp. 259–270), Mr. Trowbridge published an interesting paper on 'Hawk Flights in Connecticut.' The present paper contains further observations on the migrations of hawks in southern Con-

[1] A Case of Abnormal Plumage. By R. M. Strong. Biolog. Bull., Vol. III, No. 6, pp. 289–294, with 6 text figures. Nov. 1902.

[2] The Relation of Wind to Bird Migration. By C. C. Trowbridge. Amer. Nat., Vol. XXXVI, 1902, pp. 735–753, with 3 maps.

necticut, and on the effect of the wind on the migrations of various other species of birds. His conclusions are as follows:

"1. That the migratory movements of hawks are largely determined by the direction of the wind, hawks regularly depending on favorable winds as a help in migration.

"2. That an adverse wind not only retards the migratory movement, but that it almost completely arrests it.

"3. That the migratory period of the various species of hawks lasts for from about fifteen days to one month; during this time the migratory movements take place on days when favorable winds occur.

"4. When the wind is favorable and approximately parallel to the direction of migration, hawks fly and sail at a high altitude and occasionally soar in circles.

"5. When the wind is favorable but nearly perpendicular to the migratory direction (the favorable component being small), hawks fly low and soar continually, often alternating soaring with the wind and flying or sailing against it.

"6. That hawks migrate during the daylight, and, other conditions being the same, they are most abundant in migratory flights when the atmosphere is clear.

"7. When a migratory flight of hawks takes place, continued favorable winds exhaust the number of hawks ready to make the migratory journey, but a second favorable wind about one week later may cause a second flight equal in magnitude to the first.

"8. That a favorable wind, when the favorable component is small, may cause decided deviations of the course of migrating birds from the main migrating direction."

The author believes that other birds take advantage of favorable winds in migrating, and that in the case of the Falconidæ the habit has become well formed. Several tables are given showing the influence of weather conditions upon the flights of migrating hawks in southern Connecticut. A series of maps of the coast-line of the New England States and New Jersey is given showing the lines of flight of hawks in both autumn and spring in relation to the direction of the wind.— J. A. A.

Richmond on Birds from the Andaman and Nicobar Islands.[1]— The collection contains 520 specimens, representing nearly 100 species, collected mostly at the Great and Little Nicobar Islands by Dr. W. L. Abbott. Nine species are described as new. Besides giving the collectors' valuable field notes, measurements and critical remarks are added by Dr.

[1] Birds collected by Dr. W. L. Abbott and Mr. C. B. Kloss in the Andaman and Nicobar Islands. By Charles W. Richmond, Assistant Curator, Division of Birds, U. S. National Museum. Proc. U. S. Nat. Mus., Vol. XXV, No. 1288, pp. 287–314, 1902.